



# STATE OF IOWA

THOMAS J. VILSACK, GOVERNOR  
SALLY J. PEDERSON, LT. GOVERNOR

DEPARTMENT OF NATURAL RESOURCES  
JEFFREY R. VONK, DIRECTOR

## Underground Storage Tank System Checklist for Equipment Compatibility with E-blend Fuels (greater than 10% ethanol by volume)

This checklist is to be completed by the owner/operator and an Iowa Licensed Installer. In place of an Iowa Licensed Installer, an owner/operator may use a professional engineer's judgement who has knowledge, experience and training in materials science (API, RP 1626, p. 1.4) to determine the suitability and compatibility of materials/equipment/components with E-blend fuels. In such a case, the Professional Engineer would complete the checklist and sign it. The owner must complete those items identified as the owner's responsibility in the checklist.

Facility Name		Registration No.
Address		No. of Tanks
City, County, Zip		Date of Inspection
Owner Name		
E-blend stored <input type="checkbox"/> E-85 <input type="checkbox"/> Other		
Iowa Licensed Inspector or Professional Engineer		IA License No.
Company Name	Address	
City, Zip	Phone	

The UST system components below must be compatible with the E-blend fuel stored and dispensed (see asterisks for thread sealant and adhesive). Review this checklist thoroughly for its requirements before converting to E-blend fuel. Enter *Model/Brand*, *Manufacturer* and check either Yes or No in one or both columns under *UL Listed* or *Manufacturer Approved*.

**Table 1: Tanks and Product Piping**

Component	Model/Brand	Manufacturer	UL Listed	Manufacturer Approved
<b>Tank*</b> (capacity: )			Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>
Auto Shutoff			Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>
Sub Pump, O-rings, Gaskets			Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>
Tank Sump			Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>
ATG Probe, float/sensor			Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>
Ball Float			Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>
Sump Sensor			Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>
<b>Pipe</b>			Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>
Thread Sealant**			Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>
Adhesive**			Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>
Flex Connectors			Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>
LLD			Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>

\*Internally lined tanks are not suitable for conversion to storage of E-blend fuels. \*\* If compatibility is undetermined, analysis may be used to determine compatibility. Deadline for determining compatibility is 1 July 2007. Third party precision line testing required annually.

## Dispensers and Dispenser Sumps

The DNR and Fire Marshal Division require dispensers to bear the UL Mark or listed by another independent testing laboratory. Currently there are no E-blend compatible dispensers with a UL Mark. In the fall of 2005, the DNR, the Fire Marshal Division and the ethanol industry worked out an agreement wherein dispensers that comply with NFPA 30A for dispensing E10 may be used to dispense E85. The agreement was intended to facilitate the dispensing of E85 in Iowa while providing for the safety of customers and facilities. The agreement allowed for a two-year phase in of dispensing equipment, until July 1<sup>st</sup>, 2007 when it was believed UL Marked dispensers would be available. During the 2006 session of the Iowa General Assembly, the enactment of [2006 Iowa Acts, House File 2754](#) extended the date by which listed equipment will be required for dispensing E-85 to July 1, 2009. All UST systems that store and dispense E-blend fuel after July 1, 2009 must be fully compatible.

Owners and operators must check E-blend dispensers daily for leaks and equipment failure. Any component of the dispenser that leaks or does not operate as designed due to exposure to E-blend must be removed and replaced with compatible components. Notify the DNR immediately (515.281.8879 or 515.281.8779) of the failed component. Each daily check of the dispenser is to be recorded on the DNR's form: (<http://www.iowadnr.com/land/ust/technicalresources/documents/ethanolinspect.doc>).

The inspection record must be completed by the owner/operator or someone authorized by the owner/operator and knowledgeable about the inspection requirements. The inspection record should be kept on site where possible or available for submittal to the DNR within two working days.

If an owner/operator discontinues storing and dispensing E-blend fuel and switches back to gasoline before buying E-blend compatible dispensers, daily visual inspections of the dispenser must continue for six months after converting. Owner/operators must also continue to keep a record of the inspections on the DNR's daily inspection form.

**Table 2: Dispensers and Dispenser Sump**

Component	Model/Brand	Manufacturer	UL Listed				Manufacturer Approved			
<b>Dispenser</b>			Yes	<input type="checkbox"/>	No	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
Pipe sealant*			Yes	<input type="checkbox"/>	No	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
Seals/Gaskets			Yes	<input type="checkbox"/>	No	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
Suction Pump			Yes	<input type="checkbox"/>	No	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
Hoses			Yes	<input type="checkbox"/>	No	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
Nozzle/Swivel			Yes	<input type="checkbox"/>	No	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
Break-away			Yes	<input type="checkbox"/>	No	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
Filter			Yes	<input type="checkbox"/>	No	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
Meter			Yes	<input type="checkbox"/>	No	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
<b>Dispenser/Sump</b>										
Pipe			Yes	<input type="checkbox"/>	No	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
Pipe Sealant*			Yes	<input type="checkbox"/>	No	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
Flex Connector			Yes	<input type="checkbox"/>	No	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
Sump			Yes	<input type="checkbox"/>	No	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
Emergency Valve**			Yes	<input type="checkbox"/>	No	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
Sensor			Yes	<input type="checkbox"/>	No	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
Check valve			Yes	<input type="checkbox"/>	No	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>

\* If compatibility is undetermined, analysis may be used to determine compatibility. Deadline for determining compatibility is 1 July 2009. Third party precision line testing required annually. \*\*Emergency/Shear Valve must be compatible with E-blend fuels.

## **Before E-blend is Transferred to the Tank**

Once equipment compatibility has been established, the items below must be completed before E-blend fuel can be transferred to the tank. Items that are the responsibility of the UST owner are indicated. The remaining items are the responsibility of the Iowa Licensed Installer or Professional Engineer.

- ☐ Inform the facility's UST insurance carrier of plans to convert to an E-blend fuel. The UST insurance carrier may have additional requirements other than what the DNR requires. **(Responsibility of Owner).**
- ☐ Obtain an amended certificate of insurance indicating UST coverage for the E-blend stored and dispensed. **(Responsibility of Owner).**
- ☐ Check for water in the tank. No level of water is acceptable for E-blend fuels due to the phase separation problems. **(Responsibility of Installer initially and the owner thereafter.)**
- ☐ All visible fittings and connections at the top of the tank are tight (no vapors escape and no water enters).
- ☐ Sump and spill containment covers prevent water from entering. (Installer)
- ☐ Water infiltration problems fixed if necessary.
- ☐ The tank has been cleaned of all water and sediment.
- ☐ Clean tank certificate obtained or comparable documentation (e.g., see API Publication 2015, Cleaning Petroleum Storage Tanks and NFPA 326, Standard for the Safeguarding of Tanks and Containers for Entry, Cleaning, or Repair, 199 Edition). **(Responsibility of Owner)**
- ☐ Labeling: identify the fill port and paint access covers according to API RP 1637. Make sure transport driver cannot make the mistake of delivering E-blend fuel to the wrong fill pipe. Label dispenser.

## **First Delivery**

- ☐ Tank filled to 80 percent capacity (recommended by the Renewable Fuels Association or RFA) and kept as full as possible for 7 to 10 days. **(Responsibility of Owner)**
- ☐ Conduct a precision test of the tank system (0.1 gph leak rate) with ATG system within seven days after tank is filled to make sure system is tight and leak detection equipment is operating properly. Report any "Fail" results. **(Responsibility of Owner)**
- ☐ Test for water (use alcohol compatible paste if you stick your tanks) at the beginning of each shift for the first 48 hours after delivery (RFA). If there is water in the tank, remove it, find out how it got there and fix it so it doesn't occur again. **(Responsibility of Owner)**

- ☐ Check for water daily with your stick or ATG system if product seems to pump slow, check and replace filters. **(Responsibility of Owner)**
- ☐ Informed and demonstrated to owner/operator on how to visually inspect the E-blend dispenser for leaks and problems and on how to complete daily inspection record.
- ☐ Ethanol Compatibility Checklist signed by the Iowa licensed installer or Professional Engineer (e.g., with knowledge and training in materials science) and tank owner and submitted to the DNR by the UST owner. Include a copy of the revised certificate of insurance and the *Clean Tank Certificate* or comparable document with the checklist. **(Responsibility of Owner)**

## Ongoing Maintenance

- ☐ Check regularly for water. No level is acceptable. **(Responsibility of Owner)**
- ☐ Calibrate the dispenser liquid meter at the time of conversion and at two weeks after conversion to verify meter accuracy. Particulate materials in the product may cause excessive wear of the meter, which would require more frequent calibration (API RP 1626).
- ☐ Conduct daily, visual inspections of the dispenser and dispenser sump (secondary containment) beneath the dispenser (if one is installed) and all the other items in the inspection record. The record should be kept on site where possible and available for submittal to the DNR within two working days. **(Responsibility of Owner)**

# Installer Certification

I have inspected the visible UST system components, and reviewed available installation records of the UST site referenced on pages 1 and 2 of this checklist. I have found the information listed on the above checklist regarding the equipment/components of this UST site to be true and accurate. ☐ **Yes** ☐ **No**.

**Signed** \_\_\_\_\_, ☐ **Iowa Licensed Installer** ☐ **Professional**  
**Engineer. Date**

**Owner's Signature:** \_\_\_\_\_ **Date:** \_\_\_\_\_

**Licensed Installers/Professional Engineers:** Please comment on what equipment was needed to make the fuel path compatible with the E-blend used or why the site is not compatible for E-blend fuel

--